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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,437	08/03/2006	Wolf Steffans	20020479-02	2200
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AGILENT TECHNOLOGIES INC. INTELLECTUAL PROPERTY ADMINISTRATION,LEGAL DEPT. MS BLDG. E P.O. BOX 7599 LOVELAND, CO 80537			EXAMINER STAFFORD, PATRICK	
			ART UNIT	PAPER NUMBER
			2828	
			NOTIFICATION DATE	DELIVERY MODE
			10/26/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPOPS.LEGAL@agilent.com

Office Action Summary	Application No. 10/529,437	Applicant(s) STEFFANS ET AL.	
	Examiner Patrick Stafford	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/25/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 9, 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehuya et al (U.S. Patent 5,537,432, hereafter '432) in view of Fox et al (U.S. Patent 4,868,834, hereafter '834).

Claims 1, 13-14: '432 teaches a wavelength tunable cavity, comprising:

a first reflecting unit (col. 9, lines 15-19 and Fig. 15, part 154) adapted to at least partially reflect an incident beam of electromagnetic radiation towards a second reflecting unit (col. 9, lines 15-19 and Fig. 15, part 152),

said second reflecting unit adapted to at least partially reflect an incident beam of electromagnetic radiation back towards said first reflecting unit, both reflecting units providing the formation of resonance modes of said electromagnetic radiation within said cavity, wherein an optical path of said beam within said cavity is defined in length by said first and second reflecting units (col. 9, lines 15-19),

a grating, which is arranged within said optical path of said beam being reflected by said first reflecting unit, said grating being adapted for tuning the wavelength of said beam (col. 9, lines 19-21).

'432 does not explicitly teach the second reflecting unit is arranged being rotatable about an axis by at least 360 degrees for providing a continuous movement of the second reflecting unit along a circle path with respect to the grating, and the circle path of the second reflecting unit comprising at least a portions being arranged to intersect with the beam, which is redirected by the grating. However, '832 teaches a wavelength tunable laser cavity with a rotatable second reflecting unit being rotatable about an axis by at least 360 degrees (col. 2, lines 15-21 and Fig. 1, part 22) for providing a continuous movement of the second reflecting unit along a circle path with respect to the grating (col. 2, lines 45-54), and the circle path of the second reflecting unit comprising at least a portions being arranged to intersect with the beam, which is redirected by the grating (col. 2, lines 6-8) in order to rapidly tune a laser and emit varying wavelengths.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a wavelength tunable laser cavity with a rotatable second reflecting unit being rotatable about an axis by at least 360 degrees for providing a continuous movement of the second reflecting unit along a circle path with respect to the grating, and the circle path of the second reflecting unit comprising at least a portions being arranged to intersect with the beam, which is redirected by the grating in order to rapidly tune a laser and emit varying wavelengths.

Claim 2: '432 and '832 teach the cavity according to claim 1. '432 teaches a laser source, which comprises a gain medium (Fig. 15, part 156) emitting a beam of electromagnetic radiation through a front surface (Fig. 15, part 162) along said optical path towards said grating (col. 9, lines 15-21 and Fig. 15, beam toward part 158), and said first reflecting unit as a back facet (col. 9, lines 15-17 and Fig. 15, part 154).

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Claims 3 and 15: '432 and '832 teach the cavity according to claim 1. '432 teaches the first and second reflecting units and the grating are arranged as a Littmann-cavity (col. 9, lines 13-15).

'832 teaches a pivot point, the pivot point having a position substantially within the axis of rotation of the second reflecting units (col. 2, lines 5-14 and Fig. 1, part 22).

Claim 4: '432 and '832 teach the cavity according to claim 1. '832 teaches the axis of rotation of said second reflecting unit is arranged being substantially orthogonal to a plane defined by the first and second reflecting units and the grating (Fig. 1, part 22, orthogonal to axis 25 and 27).

Claim 5: '432 teaches a wavelength tunable cavity, comprising:

a first reflecting unit (col. 9, lines 15-19 and Fig. 15, part 154) adapted to at least partially reflect an incident beam of electromagnetic radiation towards a second reflecting unit (col. 9, lines 15-19 and Fig. 15, part 152),

the said second reflecting unit adapted to at least partially reflect an incident beam of electromagnetic radiation towards said first reflecting unit, both reflecting units providing the formation of resonance modes of said electromagnetic radiation within said cavity, wherein an optical path of said beam within said cavity is defined in length by said first and second reflecting units (col. 9, lines 15-19),

at least one grating adapted to redirect said optical path of said beam being reflected by said first reflecting unit towards said second reflecting unit, being adapted for tuning the wavelength of said beam (col. 9, lines 19-21).

'432 does not explicitly teach the at least one grating is arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with respect to the first and second reflecting unit, the circle path of said at least one grating

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comprising at least a portion being arranged to intersect with said beam, which is reflected by said first reflecting unit. However, '832 teaches a wavelength tunable laser cavity with a grating arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with respect to the first and second reflecting unit (col. 3, lines 2-9), the circle path of the grating comprising at least a portion being arranged to intersect with the beam, which is reflected by the first reflecting unit (col. 3, lines 2-9 and Fig. 2, part 25) in order to rapidly tune a laser and emit varying wavelengths. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a wavelength tunable laser cavity with a grating arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with respect to the first and second reflecting unit, the circle path of the grating comprising at least a portion being arranged to intersect with the beam, which is reflected by the first reflecting unit in order to rapidly tune a laser and emit varying wavelengths.

Claim 6: '432 and '832 teach the cavity according to claim 5. '432 teaches a laser source, which comprises a gain medium (Fig. 15, part 156) emitting a beam of electromagnetic radiation through a front surface (Fig. 15, part 162) along said optical path towards said grating (col. 9, lines 15-21 and Fig. 15, beam toward part 158), and said first reflecting unit as a back facet (col. 9, lines 15-17 and Fig. 15, part 154).

Claims 9, 13-14: '432 teaches a wavelength tunable cavity, comprising:

a first reflecting unit (col. 9, lines 15-19 and Fig. 15, part 154) adapted to at least partially reflect an incident beam of electromagnetic radiation towards a second reflecting unit (col. 9, lines 15-19 and Fig. 15, part 152),

said second reflecting unit adapted to at least partially reflect an incident beam of electromagnetic radiation back towards said first reflecting unit, both reflecting units providing the formation of resonance modes of said electromagnetic radiation within said cavity, wherein an optical path of said beam within said cavity is defined in length by said first and second reflecting units (col. 9, lines 15-19),

a grating, adapted to redirect the optical path of the beam being reflected by the first reflecting unit towards the second reflecting unit, the grating being adapted for tuning the wavelength of the beam by means of diffraction (col. 9, lines 19-21).

'432 does not explicitly teach a redirection reflecting unit adapted to redirect the optical path of the beam, which is redirected from the grating towards the second reflecting unit, wherein the redirection reflecting unit is arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with respect to the grating and the second reflecting unit, the circle path of the redirection reflecting unit comprising at least a portion being arranged to intersect with the beam, which is redirected by the grating. However, '832 teaches a wavelength tunable laser cavity with a redirection reflecting unit adapted to redirect the optical path of the beam (col. 2, lines 15-21 and Fig. 1, part 22), which is redirected from the grating towards the second reflecting unit (col. 2, lines 15-21 and Fig. 1, part 22 redirects to grating and second reflecting unit parts 25 and 27), wherein the redirection reflecting unit is arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with respect to the grating and the second reflecting unit (col. 2, lines 15-21 and Fig. 1, part 22), the circle path of the redirection reflecting unit comprising at least a portion being arranged to intersect with the beam, which is redirected

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by the grating (Fig. 1, parts 25 and 27) in order to rapidly tune a laser and emit varying wavelengths. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a wavelength tunable laser cavity with a redirection reflecting unit adapted to redirect the optical path of the beam, which is redirected from the grating towards the second reflecting unit, wherein the redirection reflecting unit is arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with respect to the grating and the second reflecting unit, the circle path of the redirection reflecting unit comprising at least a portion being arranged to intersect with the beam, which is redirected by the grating in order to rapidly tune a laser and emit varying wavelengths.

Claim 16: '432 and '832 teach the cavity according to claim 1. '432 teaches at least one of the reflecting units comprises at least one of: a mirror, a plan mirror, a cavity end mirror and a retro-reflecting unit (col. 9, lines 15-19).

Claims 7-8, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehuya et al (U.S. Patent 5,537,432, hereafter '432) in view of Fox et al (U.S. Patent 4,868,834, hereafter '834) and further in view of Fink (U.S. Patent 4,862,468, hereafter '468).

Claim 7: '432 and '832 teach the cavity according to claim 5. '834 teaches the grating being rotatable about the same axis by at least 360 degrees. They do not explicitly teach a first and at least one second grating, the first grating having a first grating constant and the second grating having a second grating constant, which is different from said first grating constant, both gratings adapted to redirect said beam being reflected by said first reflecting unit towards said second

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reflecting unit. However, '468 teaches a wavelength varying cavity laser with a first and at least one second grating (col. 6, lines 55-64 and Fig. 6, parts 73 and 75), the first grating having a first grating constant and the second grating having a second grating constant, which is different from said first grating constant (col. 6, lines 41-49), both gratings adapted to redirect said beam being reflected by said first reflecting unit towards said second reflecting unit (col. 6, lines 55-64 and Fig. 6, parts 73 and 75 reflect back to part 13) in order to provide a varying wavelength output. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a wavelength varying cavity laser with a first and at least one second grating, the first grating having a first grating constant and the second grating having a second grating constant, which is different from said first grating constant, both gratings adapted to redirect said beam being reflected by said first reflecting unit towards said second reflecting unit in order to provide a varying wavelength output.

Claim 8: '432, '832 and '468 teach a cavity according to claim 7. '468 teaches the grating being mounted to a rotatable support (col. 6, lines 53-55 and Fig. 6, part 69), and each grating comprising: the same axis of rotation (col. 6, lines 53-55 and Fig. 6, part 69), and the same circle path comprising the same portion being arranged to intersect with said beam (col. 6, lines 55-60), which is reflected by said first reflecting unit (col. 6, lines 50-55).

Claim 10: '432 and '834 teach the wavelength tunable cavity according to claim 5. They do not explicitly teach the second reflecting unit and the grating are both arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with respect to said grating. However, '468 teaches a wavelength varying cavity laser with a second reflecting unit and the grating are both arranged being rotatable along a circle path

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about an axis by at least 360 degrees for providing a continuous movement with respect to said grating (col. 6, lines 53-60 and Fig. 6, "rotatable mirror" part 61 and "rotatable grating" part 73) in order to provide a unique spectral line. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a wavelength varying cavity laser with a second reflecting unit and the grating are both arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with respect to said grating in order to provide a unique spectral line.

Claim 11: '432, '834 and '468 teach cavity according to claim 10. '432 teaches a laser source, which comprises a gain medium (Fig. 15, part 156) emitting a beam of electromagnetic radiation through a front surface (Fig. 15, part 162) along said optical path towards said grating (col. 9, lines 15-21 and Fig. 15, beam toward part 158), and said first reflecting unit as a back facet (col. 9, lines 15-17 and Fig. 15, part 154).

Claims 12 and 17: Regarding claims 12 and 17, the arguments applied above to the apparatus described with regards to claims 1-11 and 12-16 are applicable to the method claims as well.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Stafford whose telephone number is (571) 270-1275. The examiner can normally be reached on M-Th 7:30-5 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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